

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-5. (Cancelled)

6. (Cancelled)

7-11. (Cancelled)

12. (New) A pointing device comprising:

an illumination system that illuminates a surface over which said pointing device moves, said illumination system generating a light level determined by an illumination control signal;

a camera system that records a plurality of images of said illuminated surface;
and

a controller that records first and second images captured by said camera at different times and determines a displacement indicative of the direction and distance said positioning device moved between said two different times, said controller further generating said illumination control signal, said illumination control signal depending on at least one of said images recorded by said camera system;

wherein said illumination system has a first illumination setting for providing a first level of accuracy in said determined displacement and a second illumination setting for providing a second level of accuracy that is greater than said first level of accuracy, said second illumination setting requiring more power than said first illumination setting.

13. (New) The pointing device of claim 12 wherein said surface is characterized by a reflectivity and wherein said light level generated by said illumination system is inversely related to said reflectivity.

14. (New) The pointing device of claim 12 wherein said illumination system comprises a laser and variable current circuit that adjusts the current flowing through said laser in response to said illumination control signal.

15. (New) The pointing device of claim 12 wherein said illumination system comprises an LED and variable current circuit that adjusts the current flowing through said LED in response to said illumination control signal.

16. (New) The pointing device of claim 15 wherein said variable current circuit comprises a current mirror for controlling current in said LED.

17. (New) The pointing device of claim 12 wherein said illumination setting is at least partially determined by a control signal supplied by a user of said pointing device.

18. (New) A method for determining the displacement of said pointing device on a surface, said method comprising:

- illuminating said surface with a light level determined by an illumination control signal;

- recording a plurality of images of said illuminated surface; and

- comparing first and second images captured at different times to determine a displacement indicative of the direction and distance said positioning device moved between said two different times, said illumination control signal depending on at least one of said recorded images;

- providing a first light level for providing a first level of accuracy in said determined displacement and a second light level for providing a second level of accuracy that is

greater than said first level of accuracy, said second light level requiring more power than said first light level.

19. (New) The method of claim 18 wherein said surface is characterized by a reflectivity and wherein said light level is inversely related to said reflectivity.

20. (New) The method of claim 18 wherein said surface is illuminated by an LED having a bias current determined by a variable current circuit that adjusts the current flowing through said LED in response to said illumination control signal.

21. (New) The method of claim 20 wherein said variable current circuit comprises a current mirror for controlling current in said LED.

22. (New) The method of claim 18 wherein said light level is also at least partially determined by a control signal that is input by a user of said pointing device.

23. (New) A pointing device comprising:

an illumination system that illuminates a surface over which said pointing device moves, said illumination system generating a light level determined by an illumination control signal, said illumination control signal being at least partially provided by a user of said pointing device;

a camera system that records a plurality of images of said illuminated surface;
and

a controller that records first and second images captured by said camera at different times and determines a displacement indicative of the direction and distance said positioning device moved between said two different times;

wherein said illumination system has a first illumination setting for providing a first level of accuracy in said determined displacement and a second illumination setting for

providing a second level of accuracy that is greater than said first level of accuracy, said second illumination setting requiring more power than said first illumination setting.

24. (New) The pointing device of claim 23 wherein said illumination system comprises a laser and variable current circuit that adjusts the current flowing through said laser in response to said illumination control signal.

25. (New) The pointing device of claim 23 wherein said illumination system comprises an LED and variable current circuit that adjusts the current flowing through said LED in response to said illumination control signal.

26. (New) The pointing device of claim 25 wherein said variable current circuit comprises a current mirror for controlling current in said LED.

27. (New) The pointing device of claim 23 wherein said illumination setting is at least partially determined by an analysis of the light intensity received by said camera.

28. (New) A method for determining the displacement of said pointing device on a surface, said method comprising:

- illuminating said surface with a light level determined by an illumination control signal, said illumination control signal being at least partially provided by a user of said pointing device;

- recording a plurality of images of said illuminated surface; and

- comparing first and second images captured at different times to determine a displacement indicative of the direction and distance said positioning device moved between said two different times, said illumination control signal depending on at least one of said recorded images;

- providing a first light level for providing a first level of accuracy in said determined displacement and a second light level for providing a second level of accuracy that is

greater than said first level of accuracy, said second light level requiring more power than said first light level.

29. (New) The method of claim 28 wherein said surface is illuminated by an LED having a bias current determined by a variable current circuit that adjusts the current flowing through said LED in response to said illumination control signal.

30. (New) The method of claim 28 wherein said variable current circuit comprises a current mirror for controlling current in said LED.

31. (New) The method of claim 28 wherein said illumination setting is at least partially determined by an analysis of the light intensity received by said camera.